

### **REMARKS/ARGUMENTS**

Applicants have received and carefully reviewed the Office Action of the Examiner mailed January 25, 2006. Claims 1-42 remain pending, with claims 11-21 and 31-42 withdrawn from consideration. Reconsideration and reexamination are respectfully requested.

#### **Restriction Requirement**

The Examiner made a restriction requirement with five groups of claims: Group I, claims 1-10, 22-30; Group II, claims 11-18; Group III, claims 19-21, Group IV, claims 31-34; Group V, claims 35-42. Applicants hereby affirm the election of Group I, claims 1-10 and 22-30.

#### **Drawing Objection**

The Examiner objects to the drawings as not showing a plurality of heating elements in the separator. Page 14, lines 15-21 of the instant specification describe Figure 3 as a schematic diagram of part of the sensor apparatus 10,15, representing a portion of concentrator 124 or separator 126 in Figure 2. Figure 3 shows four heater elements 20, 22, 24, 26. Because Figure 3 shows four heater elements and is described as being a portion of either the concentrator or separator, Applicants submit that Figure 3 illustrates a plurality of heating elements in the separator. Withdrawal of the rejection is respectfully requested.

#### **Rejection under 35 U.S.C. § 112, first paragraph**

Claims 1 and 22-27 are rejected as based on a non-enabling disclosure. The Examiner asserts a sensor with a detector is essential to the practice of the invention, but is not included in the claims. Independent claims 1 and 22 have been amended to recite a detector. Withdrawal of the rejection is respectfully requested.

**Rejection under 35 U.S.C. § 112, second paragraph**

Claims 1-10 and 22-30 are rejected as being incomplete for omitting essential structural cooperative relationships of elements. Independent claims 1 and 22 are rejected for omitting the cooperative relationship between the ratio control mechanism and the sensor. The claims have been amended to clarify the relationship. Withdrawal of the rejection is respectfully requested.

**Rejection under 35 U.S.C. § 102(a)**

Claims 1, 2, 5, 22-24, 28, and 30 are rejected as being anticipated by Bonne (US 6,393,894). The Examiner asserts that Bonne teaches the invention substantially as claimed. Applicants respectfully traverse the rejection. Independent claims 1 and 22, as amended, recite, in part, a fluid sensor including a first plurality of heating elements situated in the concentrator and a second plurality of heating elements situated in the separator. Claim 1 further recites a ratio control mechanism for changing the ratio of concentrator heating elements relative to the separator heating elements. Claim 22 further recites a controller connected to the concentrator and separator, where the controller changes a ratio of the

concentrator and separator heater elements. Bonne does not appear to teach such a sensor. Bonne appears to teach a sensor having a plurality of heating elements in the concentrator but a single separator heater 162. See column 6, lines 29-32 and 65-66, and FIG. 6. Bonne do not appear to teach a plurality of heating elements situated in the separator. Further, Bonne do not appear to teach a ratio control mechanism as recited in claim 1, or a controller that changes a ratio as recited in claim 22. Bonne thus does not appear to teach each and every element of the independent claims or the claims dependent thereon. Additionally, there is no motivation for one of ordinary skill in the art to modify the device of Bonne to achieve the instant invention. Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 1, 2, 22-24, and 30 are rejected as being anticipated by Geis (US 6,413,781). The Examiner asserts that Geis teaches the invention substantially as claimed. Applicants respectfully traverse the rejection. Independent claims 1 and 22, as amended, recite, in part, a fluid sensor including a first plurality of heating elements situated in the concentrator and a second plurality of heating elements situated in the separator. Claim 1 further recites a ratio control mechanism for changing the ratio of concentrator heating elements relative to the separator heating elements. Claim 22 further recites a controller connected to the concentrator and separator, where the controller changes a ratio of the concentrator and separator heater elements. Geis does not appear to teach such a sensor. Geis appears to teach a pump for moving a chemical constituent along a pathway by applying a time-varying temperature profile

along the pathway. Geis appears to teach a plurality of heating elements 90 positioned along the pathway 82 leading to a channel 95 into the sensing device 99. See column 7, lines 8-33. Geis does not appear to teach a first plurality of heating elements in a concentrator and a second plurality of heating elements in a separator, as is recited in the independent claims. Further, Geis does not appear to teach a ratio control mechanism as claimed. Geis appears to teach controlling the heating elements 90 in the pathway 82 to achieve a wave-like heating progression to move the chemical constituents to positions according to their respective molecular weights. See column 2, lines 45-63. Geis thus does not appear to teach each and every element of the independent claims or the claims dependent thereon. Additionally, there is no motivation for one of ordinary skill in the art to modify the device of Geis to achieve the instant invention. Reconsideration and withdrawal of the rejection is respectfully requested.

**Rejection under 35 U.S.C. § 103(a)**

Claims 3-10 and 25-29 are rejected as being unpatentable over Geis in view of Kubisiak (US 6,169,965) and further in view of Geis. Claims 5-7 are also rejected as being unpatentable over Geis in view of Kubisiak and further in view of Geis. The Examiner acknowledges that Geis fails to teach a second detector or a flow sensor, or a processor on a separate board from the concentrator, separator and phased heater array. Kubisiak is cited for teaching a detector and flow sensor connected to a processor comprising switches and control logic, where the detector is used to measure fluid properties. The Examiner

asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Geis sensor with the processor and switches of Kubisiak in order to control the timing of the activation of the different heating elements and to gain the additional advantage of determining the phase lag and fluid properties. Applicants respectfully traverse the rejection.

For at least the reasons set forth above, Geis does not appear to teach the basic elements of independent claims 1 and 22, from which claims 3-10 and 25-29 depend. Kubisiak does not appear to provide what Geis lacks, thus any combination of Geis and Kubisiak also fails to teach each and every element of the claims.

Geis appears to teach a device for separating target constituents according to their molecular weights by moving the chemicals along a temperature gradient. Kubisiak appears to teach a device for determining thermal conductivity, thermal diffusivity, specific heat and velocity of a fluid of interest. Applicants submit that there is no motivation for one of ordinary skill in the art to modify the device of Geis using the device of Kubisiak because the devices appear to have different functions, different components and different modes of operation. Applicants submit that there is no indication in Geis that determining the phase lag and fluid properties, as taught by Kubisiak, would be advantageous or even useful.

Further, even if one were to combine the teachings of Geis and Kubisiak, one would not arrive at the claimed invention. Neither reference appears to teach or suggest a fluid sensor having a first plurality of heating elements in a concentrator

and a second plurality of heating elements in a separator, or a ratio control mechanism as claimed. Reconsideration and withdrawal of the rejection is respectfully requested.

**Obvious Double Patenting**

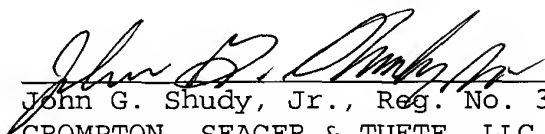
Claims 1 and 22 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 14 of US Patent No. 6,393,894 to Bonne. For at least the reasons set forth above with respect to the anticipation rejection, the instant claims are distinguished over Bonne. Additionally, claim 14 of Bonne does not appear to provide a first plurality of heating elements situated in a concentrator and a second plurality of heating elements in a separator, or a ratio control mechanism as recited in the claims. Reconsideration and withdrawal of the rejection is respectfully requested.

Reconsideration and reexamination are respectfully requested. It is submitted that, in light of the above remarks, all pending claims are now in condition for allowance. If a telephone interview would be of assistance, please contact the undersigned attorney at 612-677-9050.

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Respectfully submitted,

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